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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,235	01/02/2004	Dean DellaPenna	MSU-08604	3881

7590 11/03/2005

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EXAMINER	
WORLEY, CATHY KINGDON	
ART UNIT	**PAPER NUMBER**
1638	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,235	DELLAPENNA ET AL.	
	Examiner	Art Unit	
	Cathy K. Worley	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-32* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-17 and 21-32, drawn to an expression vector, comprising a nucleic acid sequence encoding a polypeptide at least 40% identical to SEQ ID NO:1, wherein said nucleic acid encodes a protein having monooxygenase P450 activity; and to said expression vector wherein said polypeptide is a specified amino acid sequence or wherein said nucleic acid sequence is a specified nucleic acid sequence; and to a transgenic plant or plant cell or plant seed comprising said nucleic acid sequence wherein said nucleic acid sequence is heterologous to said plant; and to a method for altering the phenotype of a plant comprising introducing said expression vector into a plant tissue under conditions such that expression of said nucleic acid sequence alters the phenotype of a plant, including said method wherein carotenoid ratios are altered, or wherein lutein is produced, classified in class 800, subclass 282, for example.

II. Claims 18-20, drawn to an expression vector comprising a nucleic acid sequence encoding a nucleic acid product that interferes with the expression of a nucleic acid sequence encoding a polypeptide at least

40% identical to SEQ ID NO:1, and to said expression vector wherein said product that inteferes is an antisense sequence, and to said expression vector wherein said product that interferes is a dsRNA that mediates RNA interference, classified in class 536, subclass 24.5, for example.

The inventions are distinct, each from the other because of the following reasons:

The inventions of groups I and II are patentably distinct. The invention of group I uses a nucleic acid in the sense orientation to produce an active recombinant protein, whereas the invention of group II uses a nucleic acid in the antisense orientation or in an interference configuration which will not produce an active recombinant protein. These are patentably distinct molecules used for separate purposes.

A search for the invention of group I will require searching the literature for P450 enzymes and e-ring and b-ring hydroxylase activity, whereas a search for group II will require searching the literature for the techniques of antisense and RNA interference. These searches are not coextensive, and therefore examining both groups would constitute an undue burden. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, and because searching the art

for each of these divergent subjects would be burdensome, restriction for examination purposes as indicated is proper.

This application contains claims directed to multiple polynucleotide molecules. Each of these are patentably distinct from each other because the polynucleotides are each unique molecules with different chemical and structural features. Applicants are reminded that nucleic acid sequences encoding different proteins, and the amino acid sequences they encode, are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute independent and distinct inventions within the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such nucleotide and amino acid sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq.

Applicant is required to select one nucleic acid or amino acid sequence from the following: SEQ ID NOs: 1-7, 16-27, 33-57. Claims that do not read on the elected sequence will be considered withdrawn. Applicant is advised that a reply to this requirement must include an identification of the sequence that is selected. An election that does not identify the sequence selected will be considered nonresponsive. This requirement is not to be construed as an election of species

since each nucleotide sequence is not a member of a single genus of invention but constitutes independent and patentably distinct inventions.

A telephone call was made to J. Mitchell Jones on Oct. 13, 2005 to request an oral election to the above restriction requirement, but did not result in an election being made because the call was answered by an answering machine.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy K. Worley whose telephone number is (571) 272-8784. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (571) 272-0745. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CKW
Oct. 18, 2005

ASHWIN D. MEHTA, PH.D.
PRIMARY EXAMINER